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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,896	03/03/2005	Shmuel Roth	P-4785-US	8877

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EXAMINER	
XU, KEVIN K	
ART UNIT	**PAPER NUMBER**
2628	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/500,896	Applicant(s) ROTH ET AL.
	Examiner Kevin K. Xu	Art Unit 2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 12 October 2006.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 10-18-06
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 6-13, 15-16, 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karakawa (6304237) in view of Lind (6069601).

Regarding claim 1, Karakawa teaches a light source to generate light of a set of at least three different chromacities by explaining the invention comprises a monochromatic red (R), green (G), blue (B) pulsed laser light source adapted for display applications, and particularly, LCD display systems. (Col 1, 59-61) Karakawa further teaches a controller to produce a light pattern corresponding to an image by selectively controlling the path of the light of said at least three primary colors by showing the schematic diagram of the monochromatic R, G, B laser light source coupled with three transmissive LCD panels as the spatial light modulators is shown in FIG. 3. Since LCD panels are totally insensitive to the pulse width modulation, this monochromatic R,G,B laser light source can be coupled with both transmissive and reflective LCD panels acting as spatial light modulators. (Col 5 lines 32-38, Fig. 3)

Since the utilization of a spatial light modulator is well known in the art as an example of a controller to determine the relative location of light of each color as projected onto the view screen, Karakawa teaches the operation of a controller as a means of projecting the projection lens contents onto the viewing screen (Fig 3). However, Karakawa fails to explicitly teach a proofed image and said chromacities are selected to define a viewed color gamut which covers said perceived color gamut of said set of inks when printed on said substrate. This is what Lind teaches. (Col 2 lines 34-55, Col 3 line 45-Col 4 line 11, Col 5 lines 10-17) It should be noted that Lind teaches soft proofing an image to be reproduced using a set of selected printing colorants (cyan, magenta and yellow) wherein the display appearance is substantially spectrally matched to the set of printing colorants. (Col 2 lines 34-55, Col 3 line 45-Col 4 line 11) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings a viewed color gamut which covers a perceived color gamut of said inks when printed on a substrate as taught by Lind into the system of Karakawa in order to reproduce a proofed image because providing a better match to a printed reproduction than prior systems and methos can be achieved. (Col 2 lines 56-58) Further, it should be noted that Lind does not explicitly teach said defined viewed color gamut which *entirely* covers a perceived color gamut of said set of inks when printed on said substrate. Nonetheless it should be noted that a purpose of the invention that Lind teaches is to select printing colorants (viewed color gamut) wherein the display appearance is *substantially spectrally matched* to a set of printing colorants (perceived color gamut). (Col 3 lines 56-65) Therefore it would have been obvious to

one of ordinary skill in the art at the time the invention was made to select the colorants of Lind to entirely cover a perceived color gamut because covering the entire perceived gamut faciliates in providing even more correctness in producing a display appearance as close as possible to a printed document.

Regarding claim 4, Karakawa teaches the light source of the display includes at least a plurality of light emitting diodes by showing the monochromatic R, G, B laser light source incorporates cw **diode laser bar** (Col 3, lines 16-17) and referring to Fig. 1, the master oscillator is coupled through output coupler to multiple Nd:YVO.sub.4 based gain modules (e.g., power amplifiers), and the average output power increases as more gain modules are added to the master oscillator. Each gain module is constructed from Nd:YVO.sub.4 crystal slab transversely pumped by one or two cw **diode laser bars**. (Col 3, lines 43-49).

Consider claim 6, Karakawa teaches at least three primary colors comprise at least four primary colors by explaining the performance goals of the monochromatic R,G,B laser light source are usually defined by the requirement for pulse repetition rate and FWHM (full-width half-max) pulse width, as well as producing high luminosity, well color-balanced white light when R,G,B laser light are mixed together. (Col 3, lines 11-15) Since the definition of white light is well known in the art as containing all the colors of the visible spectrum, the display taught by Karakawa teaches at least three primary colors comprising at least four primary colors.

Consider claim 7, Karakawa teaches wherein the light source produces light of three primary colors, the transmission spectra of which define said viewed color gamut

by showing the invention presents a monochromatic R, G, B light source which incorporates digital color space conversion electronics which transfer input video signal color space into R, G, B color space created by the monochromatic R, G, B light source, so that the resulting color spectrum is acceptable for display use. (Col 2, lines 38-42).

Consider claim 8, Karakawa teaches the displayed claimed in claim 8, comprising a spatial light modulator by demonstrating the invention includes display systems employing the monochromatic, pulsed laser light source, particularly for LCD display systems, since LCD panel (one of spatial light modulators) does not require pulse width modulation, the R, G, B pulsed laser light source may be coupled to three LCD panels (one panel for each primary color) to create a display system. (Col 2, lines 26-32)

Regarding claim 9, Karakawa teaches the display claimed in claim 9, comprising a digital micro-mirror device by showing although the specific example of three transmissive LCD panels with the monochromatic R, G, B laser light source has been discussed in detail, the invention can be coupled with other different types of spatial light modulators; such as, but not limited to: digital mirror device (DMD), two dimensional electro- mechanical, digital, mirror array device modulators, as manufactured by Texas Instruments; (Col 6, lines 43-47 and Col 6 lines 54-56).

Regarding claim 18, Karakawa teaches said controller controls path of light of said at least three primary colors based on image data (input video signal) in terms of said at least three primary colors. (Col 5 lines 32-38, Fig. 3) However, Karakawa fails

to explicitly teach a proofed image. This is what Edge teaches. (p. 1 paragraph 9, p. 1-2 paragraph 12, p. 3 paragraph 2 Figs. 1-2) It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine the teachings of a proofed image as taught by Edge into the system of Karakawa in order to control path of light of said at least three primary colors based on image data representing proofed image because soft proofing can remove the need to print copies of media during proofing process and allow multiple proofing specialists to proof colo images from remote locations simpoly by looking at display devices, rather than awaiting delivery of hard copies. (p. 1 paragraph 6)

Consider claim 10, Karakawa teaches selectively producing light of said at least three colors having at least three different chromaticities by showing the invention comprises a monochromatic red (R), green (G), blue (B) pulsed laser light source adapted for display applications, and particularly, LCD display systems. (Col 1, 59-61) Karakawa additionally teaches combining the light of at least said three primary colors to substantially reproduce said image by showing the schematic diagram of the monochromatic R, G, B laser light source coupled with three transmissive LCD panels as the spatial light modulators is shown in FIG. 3. Since LCD panels are totally insensitive to the pulse width modulation, this monochromatic R,G,B laser light source can be coupled with both transmissive and reflective LCD panels acting as spatial light modulators. (Col 5 lines 32-38) Since the utilization of a spatial light modulator is well known in the art as an example of a controller to determine the relative location of light of each color as projected onto the view screen, Karakawa teaches the operation of a

controller as a means of projecting the projection lens contents onto the viewing screen (Fig 3). However, Karakawa fails to explicitly teach a proofed image and said chromacities are selected to define a viewed color gamut which covers said perceived color gamut of said set of inks when printed on said substrate. This is what Lind teaches. (Col 2 lines 34-55, Col 3 line 45-Col 4 line 11, Col 5 lines 10-17) It should be noted that Lind teaches soft proofing an image to be reproduced using a set of selected printing colorants (cyan, magenta and yellow) wherein the display appearance is substantially spectrally matched to the set of printing colorants. (Col 2 lines 34-55, Col 3 line 45-Col 4 line 11) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings a viewed color gamut which covers a perceived color gamut of said inks when printed on a substrate as taught by Lind into the system of Karakawa in order to reproduce a proofed image because providing a better match to a printed reproduction than prior systems and methos can be achieved. (Col 2 lines 56-58) Further, it should be noted that Lind does not explicitly teach said defined viewed color gamut which _entirely_ covers a perceived color gamut of said set of inks when printed on said substrate. Nonetheless it should be noted that a purpose of the invention that Lind teaches is to select printing colorants (viewed color gamut) wherein the display appearance is *substantially spectrally matched* to a set of printing colorants (perceived color gamut). (Col 3 lines 56-65) Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the colorants of Lind to entirely cover a perceived color gamut because covering the entire perceived gamut faciliates in providing even more

correctness in producing a display appearance as close as possible to a printed document.

Consider claim 11, Karakawa teaches selectively controlling path of light of said at least three colors. (Col 1, 59-61, Fig. 3) However, Karakawa does not explicitly teach accepting image data corresponding to proofed image and converting image data into converted data corresponding to said at least three colors. This is what Edge teaches. (p. 1 paragraph 9, p. 1-2 paragraph 12, p. 3 paragraph 2 Figs. 1-2) It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine the teachings of accepting image data corrsponding to proofed image and converting said image data as taught by Edge into the system of Karakawa in order to reproduce a proofed image because soft proofing can remove the need to print copies of media during proofing process and allow multiple proofing specialists to proof colo images from remote locations simpoly by looking at display devices, rather than awaiting delivery of hard copies. (p. 1 paragraph 6)

Regarding claim 15, Karakawa further teaches wherein said at least three primary colors include a red primary, a green primary and a blue primary, the transmission spectra of which define said viewed color gamut by showing the invention presents a monochromatic R, G, B light source which incorporates digital color space conversion electronics which transfer input video signal color space into R, G, B color space created by the monochromatic R, G, B light source, so that the resulting color spectrum is acceptable for display use. (Col 2, lines 38-42)

Regarding claim 16, Karakawa teaches the method comprising spatially modulating the light of said at least three primary colors by explaining the invention includes display systems employing the monochromatic, pulsed laser light source, particularly for LCD display systems, since LCD panel (one of spatial light modulators) does not require pulse width modulation, the R, G, B pulsed laser light source may be coupled to three LCD panels (one panel for each primary color) to create a display system. (Col 2, lines 26-32).

Considering claim 2, Karakawa does not explicitly teach a correction filter. This is what Lind teaches. (Col 3, line 45- Col 4 line 11 and Fig. 3) It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine the teachings of a correction filter as taught by Lind into the system of Karakawa utilizing a viewed color gamut similar to perceived color gamut when printed as taught by Edge in order to employ said correction filter based on spectrum reflected from substrate because the correction filter of Lind provides the functionality of selecting particular colors based on particular ink and paper to be used in the printing process (Col 3, lines 55-61 and Fig. 3) including possible selection of cyan, magenta, yellow pixel elements to produce a resultant secondary color. (Col 4, lines 9-11)

Claim 12 is similar in scope to claim 2 and thus, rejected under similar rationale.

Consider claim 3, Lind teaches a correction filter being based on the spectrum of an intended light used to view the proofed image when printed on the substrate. (Col 3, lines 55-61 and Fig. 3) It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine the teachings of a correction filter

as taught by Lind into the system of Karakawa utilizing a viewed color gamut similar to perceived color gamut when printed as taught by Edge in order to employ said correction filter based on spectrum of an intended light used to view the proofed image when printed on the substrate because the correction filter of Lind provides the functionality of selecting particular colors based on particular ink and paper to be used in the printing process (Col 3, lines 55-61 and Fig. 3) including possible selection of cyan, magenta, yellow pixel elements to produce a resultant secondary color. (Col 4, lines 9-11)

Claim 13 is similar in scope to claim 3 and thus, rejected under similar rationale.

Regarding claim 19, Karakawa teaches said light source generates the light of said at least three colors independently of said proofed image. (Col 5 lines 32-38, Fig. 3)

Regarding claim 20, Karakawa teaches wherein producing light of said at least three colors comprises selectively prouding light of said at least three colors independent of proofed image. (Col 5 lines 32-38, Fig. 3)

Claims 21 and 22 are similar in scope to claims 1 and 10 except for the recitation of generating light of exactly three colors having three different chromaticities. Lind also teaches this. (Col 2 lines 34-55, Col 3 line 45-Col 4 line 11, Col 5 lines 10-17) It should be noted that Lind teaches select colorants being cyan, magenta and yellow. (Col 5 lines 10-17) Motivation to combine a proofed image and said chromacities are selected to define a viewed color gamut which covers said perceived color gamut of

said set of inks when printed on said substrate of Lind into the system of Karakawa is given in claims 1 and 10.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Karakawa (6304237) in view of Lind (6069601) in further view of Wada (6972736)

Regarding claim 5, neither Karakawa nor Lind explicitly teaches a polychromatic source to generate polychromatic light and a color filtering mechanism to *sequentially* generate the light of said at least three colors by filtering said polychromatic light. This is what Wada teaches. (Col 5 line 50 – Col 6 line 8, Col 15 lines 1-26, Col 16 lines 33-59, Fig. 1 and Fig. 11) It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine the teachings of a polychromatic light source with sequentially filtering into the system of Karakawa utilizing a viewed color gamut similar to perceived color gamut when printed as taught by Lind in order to generate light of at least three colors because white light emitted from a light source generating color lights sequentially via a timing generator (Col 5 line 50 – Col 6 line 8) provides a color display device of a time-division driving system, in which there occurs no perception of a color breakup caused by an action performed by a presenter, as well as the perception of a color breakup cause by eye movement. (Col 3 lines 18-25)

Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karakawa (6304237) in view of Lind (6069601) in further view Baba (20020122019).

Regarding claim 17, Neither Karakawa nor Lind explicitly teaches color filtering mechanism is adapted to sequentially place at least three color filters corresponding to said at least three primary colors in path of said polychromatic light. This is what Baba teaches. (p. 1 paragraph 8, p.15 paragraph 214 and Fig. 21) It should be noted that the color wheel as taught by Baba is divided into regions provided with filters for allowing of transmitted light to be R, G, B, W C, M and Y. (Col 8, paragraph 118). It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine the teachings a color wheel of Baba into the system of Karakawa utilizing a viewed color gamut similar to perceived color gamut when printed as taught by Lind in order to sequentially place at least three color filters corresponding to said at least three primary colors in path of said polychromatic light because a color wheel enables a plurality of color filters to be linked on a single module, thus saving on cost.

Regarding claim 14, Baba teaches passing light through a color wheel. (p. 1 paragraph 8, p.15 paragraph 214 and Fig. 21) It would have been obvious to one of ordinary skill in the art at the present time the invention was made to combine the teachings a color wheel of Baba into the system of Karakawa utilizing a viewed color gamut similar to perceived color gamut when printed as taught by Lind in order to produce light of said at least three primary colors because a color wheel enables a plurality of color filters to be linked on a single module, thus saving on cost.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from examiner should be directed to Kevin K Xu whose telephone number is 571-272-7747. The examiner can normally be reached on Monday-Friday from 9 AM – 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman can be reached on (571)-272-7653.

Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business Center (EB) at 866-217-9197 (toll-free).

KX

Kevin Xu

12/19/2006

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